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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,747	10/20/2003	Hiroataka Murata	244166US2S CONT	9266

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EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/687,747	Applicant(s) MURATA ET AL.	
	Examiner Regina Liang	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/26/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to amendment filed 11/2/06. Claims 1, 3-9, 11-13 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 3, 4, 6, 7, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al (US 5,899, 350 hereinafter Itoh) in view of Nishimura et al (US 5,634,837 hereinafter Nishimura).

As to claim 1, 3, 7, 11, Fig. 1 of Itoh discloses an image display apparatus (field emission display) comprising: a vacuum envelope having a first substrate (anode substrate 2) and a second substrate (cathode substrate 3) opposed to each other with a gap; a plate-shaped structure (support member 15 having a plate 16) arranged between the first substrate and the second substrate and fixed to at least one of the first and second substrate; an image display surface (display section 6) formed on an inner surface of one of the first and second substrates (the display section 6 formed on an inner surface of anode substrate 2); and a plurality of electron emitting elements (emitters 12) which are arranged on an inner surface of the other of the first and second substrates (emitters 14 are arranged on an inner surface of the cathode substrate 3) and emit electrons toward the image display surface.

Itoh does not disclose the plate-shaped structure (support member) having a thermal expansion coefficient 1.02-1.2 or 1.07-1.15 times as high as that of the cathode substrate. However, Nishimura teaches the plate-shaped structure (support member 58 in Fig. 13) having a thermal expansion coefficient approximating to that of the cathode substrate (col. 11, lines 17-25; this reads on the plate-shaped structure having a thermal expansion coefficient 1.02 or 1.07 times (approximating) as high as that of the second substrate to which the structure is fixed). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the structure of Itoh having a thermal expansion coefficient as claimed therefore precision of the fixed position of each member can be improved (col. 11, lines 23-27 of Nishimura). Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As to claim 4, Fig. 1 of Itoh teaches the structure (support member 15) includes a plate-like grid (16) located between the first substrate (1) and the second substrate (3) and opposed to the first and second substrates.

As to claim 6, Itoh as modified by Nishimura does not disclose the grid has a thermal expansion characteristic such as an elongation rate thereof is higher than that of the base substrate at any temperature. However, since Nishimura teaches the plate-shaped structure (support member 58 in Fig. 13) having a thermal expansion coefficient approximating to that of the cathode substrate, thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made that the grid of Itoh as modified by Nishimura having the thermal expansion coefficient characteristic as claimed.

As to claim 12, Fig. 1 of Itoh teaches the grid 24 is provided with a plurality of joints (19) fixed to the rear substrate (3) through pedestals, individually.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh and Nishimura as applied to claim 12 above,, and further in view of Tsuburaya et al (US. PAT. NO. 6,407,500 hereinafter Tsuburaya).

Itoh as modified by Nishimura does not disclose a power supply terminal provided on an outer surface of the rear substrate, and wherein the grid has electrical conductivity and is connected electrically to the power supply terminal through at least on the pedestals and a through hole in the rear substrate. However, Fig. 7 of Tsuburaya teaches the GT (grid) is electrically connected to a power supply terminal (Va, Vgk), Fig. 1a, 1b, 2, 5a of Tsuburaya teaches the power supply terminal (through lead 5) provided on an outer surface of the rear substrate (1), and the electrically connection is through at least on the pedestals and a through hole in the rear substrate. Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the display device of Itoh as modified by Nishimura to have a power supply terminal as taught by Tsuburaya thus resulting in stable electrical connection such that a high voltage can be effectively applied to the electrode connecting with high reliability, without the occurrence of self-discharging (col. 6, lines 36-37 and 53-55 of Tsuburaya).

5. Claims 5, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh and Nishimura as applied to claims 1 and 7 above, and further in view of Mitsuaki (JP 2000-100358).

As to claim 5, Fig. 1 of Itoh discloses the structure includes a plurality of support members (19) which are arranged between the first substrate and the second substrate. Itoh as modified by Nishimura does not disclose the support members supporting the first and second substrates against the atmospheric pressure. However, Mitsuaki teaches the support member for supporting the face plate and rear plate against the atmospheric pressure (lines 6-7 of [0017] of translation). Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support members of Itoh as modified by Nishimura to have the feature as taught by Mitsuaki such that "a screen produce can be expanded, without the interior making the weight increase not much the flat-surface mold display used by the vacua" last two lines in [0023] of Mitsuaki).

As to claim 8, Nishimura teaches the plurality of support members (10, 11, 15) "need not be made of a material having a thermal expansion coefficient approximately to that of rear plate 3, and a degree of freedom of selection of materials increases". Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support members of Itoh as modified by Nishimura to have a thermal expansion coefficient high than that of the rear substrate as claimed therefore precision of the fixed position of each support member can be improved.

As to claim 9, Fig. 1 of Itoh teaches the support members (19) are fixed to the grid (16).

Response to Arguments

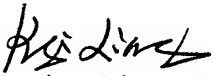
6. Applicant's arguments with respect to claims 1, 3-9, 11-13 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2629


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Regina Liang
Primary Examiner
Art Unit 2674

12/14/06


RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600